

CCPY

Appl. No. 10/766,618

Reply to Final Office Action of November 25, 2005

AMENDMENTS TO THE CLAIMS

This complete listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (Currently Amended) A method of forming a multilayer dielectric film on a substrate, comprising the steps of:
forming a metal silicate layer on the surface of the substrate; and
~~selected from the group of ZrO₂ and HfO₂~~
forming a metal oxide layer atop the metal silicate layer, ~~said metal oxide layer being~~
~~selected from the group of ZrO₂ and HfO₂~~; and
forming another metal silicate layer atop the metal oxide layer, wherein said metal silicate layers each have a thickness and a dielectric constant lower than the metal oxide layer.
2. (Cancelled)
3. (Previously Presented) The method of claim 1 wherein said forming steps are carried out by any one of, or combination of, chemical vapor deposition (CVD), physical vapor deposition (PVD), atomic layer deposition (ALD), aerosol pyrolysis, spray coating or spin-on-coating.
4. (Previously Presented) The method of claim 1 wherein said forming steps are carried out by chemical vapor deposition (CVD) and using an oxygen source selected from the group consisting of O₂, O₃, NO, N₂O, H₂O, OH⁻, alcohol, alkoxides, and H₂O₂.
5. (Cancelled)
6. (Currently Amended) The method of claim 1 wherein said metal oxide layer comprises a layer of a metal oxide has having a dielectric constant in a range of 15 to 200 and

COPY

Appl. No. 10/766,618

Reply to Final Office Action of November 25, 2005

wherein each of said metal silicate layers comprises a layer of a metal silicate has having a dielectric constant in a range of 5 to 100.

7. (Cancelled)

8. (Currently Amended) The method of claim 7 6 wherein said metal oxide includes more than one metal element.

9. (Cancelled)

10. (Currently Amended) The method of claim 4 6 wherein said metal silicate has the formula of M_xSiO_y , where M is a metal selected from the group consisting of Zr, Hf, Ti, V, Nb, Ta, Cr, Mo, W, Mn, Zn, Al, Ga, In, Ge, Sr, Pb, Sb, Bi, Sc, Y, La, Be, Mg, Ca, Sr, Ba, Th, Lanthanides (Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu), and mixtures thereof, x is a number in the range of 1 to 3, and y is a number in the range of 2 to 5.

11. (Original) The method of claim 10 wherein said metal silicate includes more than one metal element.

12. (Currently Amended) The method of claim 10 wherein said metal silicate is selected from the group consisting of $Zr_x\text{-Si-O}_y$ and $Hf_x\text{-Si-O}_y$, x is a number in the range of 1 to 3, and y is a number in the range of 2 to 5.

13. (Cancelled)

14. (Currently Amended) The method of claim 43 1 wherein said metal oxide layer has a thickness in a range of about 30 to 80Å.

15. (Currently Amended) The method of claim 43 1 wherein said second metal silicate layers has a thickness of one to two atomic layers.